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EXAMINER	
KIELIN, ERIK J	

ART UNIT	PAPER NUMBER
2813	

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/892,476	LEE ET AL.	
	Examiner	Art Unit	
	Erik Kielin	2813	AW

-- Th MAILING DATE of this communication appears on th cover she t with th correspondence address --

Peri d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disp sition of Claims

4)☒ Claim(s) *1-7 and 9-20* is/are pending in the application.

4a) Of the above claim(s) *4,7,9 and 16-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,6 and 10-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/27/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 January 2004 has been entered.

Claim Status

2. Claim 8 is canceled. Claims 4, 7, 9, 16-20 are withdrawn from further consideration. Claims 1-3, 5, 6 and 10-15 are active.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-3, 5, and 6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Independent claim 1 recites the newly added limitation, "to maintain an electric field generated between the common electrodes and the data electrodes in the same direction as the

rubbing direction." This is not possible. Fig. 4, **the elected species**, shows that the rubbing direction is at a 135° angle. By contrast, the data and common electrodes generate electric field lines which are both parallel to the page and run from left to right or right to left --i.e. either 0° or 180°-- which is not the same as the rubbing direction of 135°. Accordingly, one of ordinary skill could not make or use the invention, as presently claimed.

This rejection is repeated from the action filed 27 October 2003. The Amendment filed 27 February 2004 does nothing to address this problem, neither in the claim amendments nor in the response to the rejection. Failure to address this in the next response will result in a holding of **intentionally non-responsive**.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 10-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 recites the limitation, "edges of the data electrodes located away from the common line are rounded in a same direction as a rubbing direction." This is unclear, as presently written. A rounded corner has a **plurality of directions** because it is literally an arc of a circle. By contrast, the rubbing direction is a **singular**. Accordingly, it is unclear how the plural directions generated by a rounded edge can somehow be the singular direction generated by the rubbing direction.

The remaining claims are rejected for depending from the above rejected claims.

For the purposes of patentability, the claims will be interpreted as best understood.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims **1**, 2, 5, 6 and **10**-12 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,341,003 B1 (**Ashizawa** et al.).

Regarding claim 1, **Ashizawa** discloses an in-plane switching mode LCD device comprising:

first and second substrates (**SUB1**, **SUB2**, Fig. 2);

gate lines **GL** and data lines **DL** defining a pixel region on the first substrate (Figs. 16, 18, 19, 21, 22);

a plurality of common **CT** and data electrodes **PX** (called "pixel electrodes" in Ashizawa) formed to cross one another within the pixel region at constant intervals;

a common line **CL** formed in parallel with the gate line **GL**, the common electrodes **CT** being diverged from the common line **CL**;

a thin film transistor **TFT** formed in a crossing portion of the gate and data lines; and

a liquid crystal layer (**LC**, Fig. 2) formed between the first and second substrates, wherein the data electrodes **PX** are connected with the thin film transistor at one side and the

data electrodes overlap the common line at a minimum area so as to maintain an electric field generated between the common electrodes and the data electrodes in the same direction as a rubbing direction, **as shown for example in Fig. 21** (col. 4, lines 18-29; col. 21, line 54 to col. 24, line 22), and some edges of the data electrodes **PX** are located on an inner portion of the common line **CL** wherein other edges of the data electrodes **PX** located away from the common line **CL** are rounded (Figs. 22, 33, 35(A), 35(B) 38(A); especially **col. 31, last paragraph**). In this regard, **Ashizawa** states at col. 24,

> "FIG. 22 is a schematic plan view of one pixel that is enclosed by a light shield film, that is, the main structure of a liquid crystal display device according to a fifth embodiment of the invention. In the third embodiment, the **occurrence of a rubbing defect is prevented by equalizing the direction θS of the peripheries of those portions of the pixel electrode PX that are connected to the storage capacitor Cstg to the rubbing direction θR at the crossing portions having a level difference where those portions of the pixel electrode PX cross the counter voltage signal line CL**." (Emphasis added.)

Regarding claim 2, the common electrodes **CT** include a first common electrode formed in parallel with the data line **TFT** and diverged from the common line **CL** within the pixel region (Fig. 18);

a second common electrode **CT** formed with at least one data electrode **PX** interposed between the first common electrode **CT** and the second common electrode **CT** in parallel with the first common electrode **CT** and diverged from the common line **CL** (Fig. 18); and

a third common electrode **CT** formed with at least one data electrode **PX** interposed between the second common electrode **CT** and the third common electrode **CT**, having one end connected with one end of the second common electrode (i.e. by the common line **CL**) (Figs. 18).

Regarding claim 5, the overlap of the data electrodes **PX** with the common line **CL** form edge portions that are selectively located inside and outside the common line (Figs. 16, 18, 19, 21, 22).

Regarding claim 6, the selective inside and outside locations of the edge portions are based upon a rubbing direction, **as shown for example in Fig. 21** (col. 4, lines 18-29; col. 21, line 54 to col. 24, line 22; Figs. 16, 18, 19, 21, 22).

Regarding claim 10, **Ashizawa** discloses an in-plane switching liquid crystal display device, comprising:

a plurality of parallel data lines **DL** (Fig. 32);

a plurality of gate lines **GL**, crossing the data lines **DL**, such that a pixel region is defined by the data and gate lines;

a thin film transistor **TFT** comprising source, drain and gate electrodes formed at a crossing point of the data and gate lines;

a common line **CL** within the pixel region;

a plurality of common electrodes **CT** extending in a direction perpendicular to the common line **CL**;

a plurality of data electrodes **PX** parallel to the common electrodes **CT**, first ends of the data electrodes connected to the drain of said thin film transistor **TFT**, second ends of the data electrodes are located on an inner portion of the common line, edges of the data electrodes **PX** located away from the common line are rounded in a same direction as a rubbing direction, and wherein the data electrodes **PX** and the common electrodes **CT** form an alternating pattern; and

a transverse data electrode **Cstg** overlying the common line **CL** and connecting second ends of the data electrodes **PX**, the transverse data electrode **Cstg** having a first portion having a first width and a second portion having a second width, wherein the first width is less than the second width; wherein the first width is sufficiently narrow that disinclination is removed. (Disinclination is necessarily removed because **Ashizawa** teaches that the common and data electrodes are fashioned to prevent alignment problems due to the rubbing (alignment) direction of the liquid crystals, which Applicant indicates is the problem leading to disinclination. See col. 4, lines 18-29; col. 21, line 54 to col. 24, line 22; Figs. 16, 18, 19, 21, 22, 33, 35(A), 35(B), and 38(A).)

With respect to the rounded corners at the joining portions of the data electrodes PX with the transverse data electrode C_{stg} **--away from the common line CL**-- Ashizawa shows rounded corners in Figs. 35(B) and 38(A) as discussed at col. 31, line 48 to col. 32, line 14, wherein Ashizawa states that 35(A) and 35(B) are related to that shown in Figs. 38(A) and 38(B) -- especially at the location denoted "a'." Ashizawa additionally shows rounding in the rubbing direction when Figs. 35(B) and 38(A) are considered with at least Fig. 22 as discussed in col. 24, lines 4-21 and in more detail in the section entitled "3. Preferred Electrode Structures for Suppressing 'Alignment Defects' " in col. 21, line 54 to col. 27, line 3. Note that DIR(Np) and DIR(Nn) are the rubbing directions θR. (See Ashizawa col. 25.) Finally, as noted above in the rejection of the claims. Rounding provides and infinite number of directions since rounding generates an arc. Accordingly, the rubbing directions DIR(Np) and DIR(Nn) are shown to fall within the directions of the arc. Accordingly, these newly added limitations to claims 1 and 10 are necessarily met.

Regarding claim 11, the first ends of the common electrodes **CT** intersect the common line **CL** wherein at least one corner portion of a vertex of the intersection of the common electrodes **CT** and the common line **CL** is rounded (Fig. 38(A)); and

wherein at least one corner portion of a vertex of a connecting point of the second ends of the data electrodes **PX** and the transverse data electrode is substantially rounded (Fig. 38(A)).

Regarding claim 12, the first portion of the transverse data electrode (not labeled, but shown as the connecting portion of the data electrodes **PX** overlying the common line **CL**; Fig. 18) corresponds to the at least one corner portion of the vertex of the intersection of the common electrodes **CT** and the common line **CL**.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims **1**-3, 5, 6, and **10**-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,281,958 B1 (**Nakajima**) in view of Applicant's admitted prior art (**APA**).

Nakajima discloses an in-plane switching mode LCD device (Title) comprising:

first **20** and second **21** substrates (col. 3, line 44; Fig. 2);

gate lines **39** (called "source line" in Nakajima) and data lines **31** defining a pixel region on the first substrate (Fig. 3);

a plurality of common **33** and data electrodes **40** (called "pixel electrodes" in Nakajima) formed to cross one another within the pixel region at constant intervals;

a common line **32** formed in parallel with the gate line **31**, the common electrodes **33** being diverged from the common line **32**;

a thin film transistor **38** formed in a crossing portion of the gate and data lines; and

a liquid crystal layer **16** (Fig. 2) formed between the first **20** and second **21** substrates,

wherein the data electrodes **40** are connected with the thin film transistor at one side and the data electrodes overlap the common line at a minimum area so as to maintain an electric field generated between the common electrodes and the data electrodes in a same direction as the rubbing direction (called "initial aligning angle" in Nakajima at col. 7, line 25, for example; col. 7, lines 13-61), and some edges of the data electrodes **40** are located on an inner portion of the common line **32** wherein other edges of the data electrodes **40** located away from the common line **32** (as shown e.g. in Fig. 3). In this regard, **Nakajima** states at col. 7, lines 35-61,

> "Therefore, unlike the conventional arrangement [of the pixel electrode and common electrodes/line], the present embodiment does **not** cause a difference between the inclining direction of the **electric line of force** [i.e. the electric field] and the **initial aligning direction** [i.e. rubbing direction] **of the liquid crystal molecules**, partially within the same pixel, especially on ends of the display section. Namely, the inclining directions of the electric lines of force 18 are set so as to be even within the same pixel, and the **initial aligning directions of the liquid crystal molecules 19 are set so as to be the same as the inclining direction of the electric lines of force 18**. With this arrangement, for example, when voltage is applied, the liquid crystal molecules 19 rotate to the right in the entire pixel in the liquid crystal display panel of the present embodiment; therefore, it becomes possible to **considerably improve the display quality as compared with the conventional arrangement**. Additionally, the state of a rotating liquid crystal molecule during the application of voltage will be described later." (Emphasis added.)

> "As described above, **the initial aligning angle of the liquid crystal molecule 19 is not particularly limited as long as the initial aligning angle is set in accordance with the inclining direction of the electric line of force 18** of the display section 17. For example, it is possible to obtain sufficient contrast in the case when the angle ranges between 0° to 45° in the clockwise direction in the FIG. 1 with regard to the branching wires of the pixel electrode 10 and the common electrode 3 which are disposed orthogonally to the common line 2. Here, the angle is set at 2° in the present embodiment." (Emphasis added.)

(See also col. 3, lines 58-62; section entitled "EMBODIMENT 3" beginning at col. 11, line 1 -- especially col. 13, lines 5-15.)

Nakajima does not state that the data electrodes **40** located away from the common line **32** (as shown in Fig. 3) are rounded.

APA in paragraph [19] states that such corners are inherently rounded.

It would have been obvious for one of ordinary skill in the art, at the time of the invention to form the corners of **Nakajima** to be rounded, because **APA** states that this occurs as a matter of the manufacturing and that only in "design" are the corners shown to be "right angles."

Regarding claim 2, the plurality of common electrodes **33** include a first common electrode formed in parallel with the data line **39** and diverged from the common line **32** within the pixel region;

a second common electrode **33** formed with at least one data electrode **40** interposed between the first common electrode **33** and the second common electrode **33** in parallel with the first common electrode **33** and diverged from the common line **32**; and

a third common electrode **33** formed with at least one data electrode **40** interposed between the second common electrode **33** and the third common electrode **33**, the second

common electrode having one end connected with one end of the second common electrode (i.e. by the common line **32**).

Regarding claim 3, **Nakajima** discloses, the data electrodes **70** include a first data electrode having one side connected with the thin film transistor **68** and the other side extended to an upper portion of the common line **62**, and a second data electrode **70** formed between the second common electrode **63** and the third common electrode **63**, wherein the second data electrode **70** is connected with the first data electrode **70** at the upper portion of the common line **62** (Fig. 4). **Nakajima** also discloses in Fig. 3 that the first and second data electrodes are connected at "the one side of the transistor" and at the opposite side.

Nakajima does not show **in a single embodiment** the combination that the first and second data electrodes are connected both at "the one side of the first data electrode" near the transistor and also over the common line.

APA teaches that the connection of the first and second data electrodes at "the one side" and over the common line is conventional in prior art Fig. 2

It would have been obvious for one of ordinary skill in the art, at the time of the invention to connect the first and second data electrodes over the common line and at "the one side of the first data electrode" because Nakajima teaches each configuration separately and because APA teaches that this configuration is conventional. Moreover, this feature is not shown to be critical to the objective of the invention, which is instead to form the data and common electrodes so that the electric field generated thereby is aligned with the initial alignment of the liquid crystals. Where the data electrodes connect has not been shown to affect said objective.

Regarding claim 5, the overlap of the data electrodes **40** overlapped with the common line **32** form edge portions that are selectively located inside and outside the common line.

Regarding claim 6, the selective inside and outside locations of the edge portions are based on a rubbing direction **49** (called "initial inclination direction" in **Nakajima**; col. 7, lines 13-61).

Regarding claim 10, **Nakajima** discloses an in-plane switching liquid crystal display device, comprising:

a plurality of parallel data lines **69** (Fig. 4);

a plurality of gate lines **61**, crossing the data lines **69**, such that a pixel region is defined by the data and gate lines;

a thin film transistor **68** comprising source, drain and gate electrodes formed at a crossing point of the data and gate lines;

a common line **62** within the pixel region;

a plurality of common electrodes **63** extending in a direction perpendicular to the common line **62**;

a plurality of data electrodes **70** parallel to the common electrodes **63**, wherein (1) first ends of the data electrodes connected to the drain of said thin film transistor **68** (because the source is connected to the source line 9 **the drain is necessarily connected to the data [i.e. the pixel] electrodes 70** as stated at col. 5, lines 6-12 and at col. 6, lines 8-14 and as shown in Fig. 2), (2) second ends of the data electrodes are located on an inner portion of the common line **62**, (3) wherein some edges of the data electrodes **70** are located away from the common line, and

(4) wherein the data electrodes **70** and the common electrodes **63** forming an alternating pattern; and

a transverse data electrode **70** overlying the common line **62** and connecting second ends of the data electrodes **70**, the transverse data electrode **70** having a first portion having a first width and a second portion having a second width,

wherein the first width is less than the second width; wherein the first width is sufficiently narrow that disinclination is removed. (Disinclination is necessarily removed because **Nakajima** teaches that the liquid crystal functions properly everywhere at col. 3, lines 58-62 and col. 7, lines 13-61.)

Nakajima does not state that the edges of the data electrodes **70** located away from the common line are "rounded in **a** same direction as a rubbing direction." However, **Nakajima** states at col. 12, lines 39-44,

> "It is possible to obtain sufficient contrast in the case when the initial aligning angle [i.e. rubbing direction] of the liquid crystal molecule 79 **ranges between 0° to 45° in the clockwise direction in the Figure** [4] with regard to the wires of the pixel [i.e. data] electrodes 70 and the common electrodes 63, which are disposed orthogonally to the common line 62." (Emphasis added.)

APA in paragraph [19] states that the electrode corners are inherently rounded as a result of the manufacturing. Since **Nakajima** indicates that the rubbing direction may be 0° to 45°, the inherent rounding of the corner edges of the data electrodes 70 away from the common line are in "a" rubbing direction as shown in Fig. 4 of **Nakajima**. The rounded edges inherently occurring at the corners of the data electrodes would be 0° to 90° in a clockwise direction of Nakajima's Fig. 4, as shown to be inherent in the **APA** Figs. 2B and 2C. (Even narrowly interpreting the rounding direction as shown in Fig. 4 of the instant application, at **Nakajima**'s

45° rubbing direction, is the inherent direction of rounding indicated to naturally occur during manufacturing, as stated by **APA**, of the corner edges of the electrodes located away from the common line in **Nakajima**.)

It would have been obvious for one of ordinary skill in the art, at the time of the invention to form the corners of **Nakajima** to be rounded, because **APA** states that this occurs as a matter of the manufacturing and that only in "design" are the corners shown to be "right angles."

Regarding claim 11, as noted above, **Nakajima** discloses each of the features of claim 10 and additionally, that first ends of the common electrodes **62** intersect the common line **62** and that the data electrodes **70** have an intersecting point with the transverse electrode **70** (Fig. 4). But **Nakajima** does not indicate (1) that at least one corner portion of a vertex of the intersection of the common electrodes and the common line is rounded; and (2) that at least one corner portion of a vertex of a connecting point of the second ends of the data electrodes and the transverse data electrode is substantially rounded. In short, **Nakajima** does not indicate that the corners formed at the intersection points of the electrodes with the lines are rounded.

APA in paragraph [19] states that such corners are inherently rounded. It would have been obvious for one of ordinary skill in the art, at the time of the invention to form the corners of **Nakajima** to be rounded, because **APA** states that this occurs as a matter of the manufacturing and that only in "design" are the corners shown to be "right angles."

Regarding claim 12, **Nakajima** discloses that the first portion of the transverse data electrode corresponds to the at least one corner portion of the vertex of the intersection of the common electrodes and the common line.

Regarding claim 13, **Nakajima** does not disclose that the LCD further comprises a

transverse common electrode connected to second ends of the common electrodes, wherein at least one corner portion of a vertex of the intersection of the common electrodes and the transverse common electrode is rounded.

APA prior art Fig. 2C teaches that the transverse common electrode is a common configuration and that it is known to round the corners of the intersection between the electrodes and the transverse electrodes (paragraph [19]).

It would have been obvious for one of ordinary skill in the art, at the time of the invention to apply the features of the **APA** to **Nakajima** to connect the common electrodes ends opposite the common line and to round the corners, because **APA** teaches that this is common in the art.

Regarding claims 14 and 15, **Nakajima** does not discloses that the second ends of the data electrodes **40** (Fig. 3) connect to a second transverse data electrode, the second transverse data electrode having a third portion having a third width and a fourth portion having a fourth width, wherein the third width is less than the fourth width (instant claim 14). **Nakajima** also fails to disclose that the third portion of the second transverse data electrode corresponds to the at least one corner portion of the vertex of the intersection of the common electrodes and the transverse common electrode (instant claim 15).

APA prior art Fig. 2C shows these features.

It would have been obvious for one of ordinary skill in the art, at the time of the invention to apply the features of the **APA** to **Nakajima** to connect the data electrodes ends opposite the first transverse electrode, because **APA** teaches that this is common in the art.

Response to Arguments

11. Applicant's arguments with respect to claims 1-3, 5, 6, and 10-15 as rejected over Nakajima have been considered but are moot in view of the new ground(s) of rejection.

12. Applicant's arguments filed 21 January 2004 regarding the rejection of the claims over Ashizawa have been fully considered but they are not persuasive.

Applicant argues,

> "Ashizawa fails to teach or suggest 'edges of the data electrodes are located on an inner portion of the common line wherein edges of the data electrodes located away from the common line are rounded', as recited in independent claim 1, and 'second ends of the data electrodes are located on an inner portion of the common line wherein edges of the data electrodes located away from the common line are rounded in a same direction as a rubbing direction', as recited in independent claim 10."

Examiner respectfully disagrees. With respect to the rounded corners at the joining portions of the data electrodes PX with the transverse data electrode C_{stg} --**away from the common line CL**-- Ashizawa shows rounded corners in Figs. 35(B) and 38(A) as discussed at col. 31, line 48 to col. 32, line 14, wherein Ashizawa states that 35(A) and 35(B) are related to that shown in Figs. 38(A) and 38(B) --especially at the location denoted "a'." Ashizawa additionally shows rounding in the rubbing direction when Figs. 35(B) and 38(A) are considered with at least Fig. 22 as discussed in col. 24, lines 4-21 and in more detail in the section entitled "3. Preferred Electrode Structures for Suppressing 'Alignment Defects' " in col. 21, line 54 to col. 27, line 3. Note that DIR(Np) and DIR(Nn) are the rubbing directions θR. (See Ashizawa col. 25.) Finally, as noted above in the rejection of the claims. Rounding provides and infinite number of directions since rounding generates an arc. Accordingly, the rubbing directions DIR(Np) and

DIR(Nn) are shown to fall within the directions of the arc. Accordingly, this limitation is necessarily met.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erik Kielin whose telephone number is 571-272-1693. The examiner can normally be reached on 9:00 - 19:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erik Kielin
Primary Examiner
5 May 2004